Final Report

Evaluation of the Parma D.A.Y. (Designed Around You) Program

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Introduction

Facilitating the safe transition of persons from the acute care hospital to home is a priority issue, given the frequency with which individuals are readmitted and/or visit the emergency department within 30 days of discharge. Many of these individuals require rehabilitation services, but reimbursement policy currently limits available options for continuing care. Furthermore, families may need more comprehensive education about health care needs of their family member, and home environments may need to be modified to ensure safety once the person returns home. One strategy for meeting these needs of patients and family members is an expanded adult day services program.

The D.A.Y. program is a structured eight (8) week program that has been integrated into an ongoing senior day care program. The goals of the program are to prepare individuals for independent and safe functioning, help families plan for new care requirements, assess and modify the home environment as needed, and identify and address clinical and functional issues as they occur in the early post-discharge period. Daily nursing assessments, discharge planning, and medication supervision are provided, along with onsite physical and occupational therapy and mental and social stimulation. Additional services may include wound care, dietary supervision, oxygen therapy, and glucose monitoring. This report provides an evaluation of that program, conducted by faculty from the Frances Payne Bolton School of Nursing and supported by a grant from the Parma Community Hospital Foundation.

Methods

A research contract was established between Case Western Reserve University (CWRU) and the Parma Community Hospital Foundation. The IRBs at both Parma Hospital and CWRU approved the study, and a data use agreement was signed. Data were abstracted from the records generated specifically for the D.A.Y. program participants. In addition, utilization information related to number of therapy sessions and post-hospital discharge readmissions and emergency department (ED) visits was retrieved from the Parma Hospital electronic record system. After an amendment to the IRB approvals at both the hospital and the University, additional data were collected on the patients who had been offered the option to attend the D.A.Y. program but selected alternative post-discharge routes.

Description of D.A.Y. Program Participants

Thirty-three (33) individuals participated in the D.A.Y. program between the years 2005 and 2008. By year, the enrollments were 3 (2005), 10 (2006), 12 (2007) and 8 (2008). The majority of participants were female (60.6%) and Caucasion (100%). Average age was 76 years old, with a range extending from 52 to 91. More than 90% of the participants had Medicare insurance, and most also had supplemental insurance. Living arrangements were evenly divided across living alone (30.3%), living with a spouse (30.3%), and living with an adult child (36.4%). The spouse (27.3%) or adult child (57.6%) were most often identified as the primary caregivers.

Characteristic	Percentage/Mean	Number/Range
Male	39.4	13
Female	60.6	20
White	100	33
Medicare	90.9	30
Private	9.1	3
Lives alone	30.3	10
Lives with spouse	30.3	10
Lives with adult child	36.4	12
Lives with relative	3.0	1
Caregiver - spouse	27.3	9
Caregiver – adult child	57.6	19
Caregiver – other relative	9.1	3
Caregiver – other	6.1	2
Age - years	76.0	52-91

Clinical Information about Program Participants

Most of the program participants had a neurological primary diagnosis (81.8%). More specifically, 60.6% had experienced a CVA (stroke), 6.1% had Parkinson's syndrome exacerbation, 9.1% had a subdural hematoma, and 6.1% had a diagnosis of encephalopathy. The remaining participants had either an orthopedic diagnosis (total knee or hip replacement and fractured pelvis) or a non-specific diagnosis (gait disorder and generalized weakness). The participants who had experienced a CVA demonstrated many associated symptoms, including hemiparesis (51.5%), dysphagia (12.1%), aphasia (30.3%), slurred speech (27.3%), flat affect (15.2%) and facial droop (15.2%).

Primary Diagnosis	Percentage	Diagnosis Grouping
CVA/stroke	60.6	Neurological
Total knee/hip	9.1	Orthopedic
Parkinsons	6.1	Neurological
Fractured pelvis	3.0	Orthopedic
Subdural hematoma	9.1	Neurological
Encephalopathy	6.1	Neurological
Gait disorder	3.0	Other
Weakness/deconditioning	3.0	Other

Program participants had numerous comorbid conditions, with an average of 6.2 diagnoses in addition to the primary diagnosis. The most frequently occurring comorbid conditions were hypertension (72.7%), cardiac disease (66.7%), hyperlipidemia/hypercholesterolemia (45.5%), arthritis (45.5%), diabetes (39.4%), vascular disease (30.3%), cancer or cancer history (24.2%), and Alzheimers dementia (24.2%). Specific cardiac diagnoses included CAD/history of MI (33.3%) and heart failure (24.2%).

Comorbid Condition	Percentage
Diabetes	39.4
Parkinsons	6.1
Cardiac Disease	66.7
CAD/MI	33.3
CHF/HF	24.2
Hypercholesterolemia/hyperlipidemia	45.5
Carotid artery stenosis	15.2
Hypertension	72.7
Vascular disease	30.3

Lung disease	21.2
COPD	9.1
Renal disease	12.1
UTI	21.2
Gyn/GU	6.1
Cancer (hx)	24.2
Seizure disorder	9.1
Psychiatric disorder	15.2
Depression	6.1
Alzheimers dementia	24.2
Arthritis	45.5
Osteoporosis	21.2
Peptic/duodenal ulcer disease	12.1
GERD	6.1
Diverticulitis/diverticulosis	9.1
C-diff-colitis	6.1
Thyroid disorder	9.1
Anemia	12.1
DVT	18.2
Ankylosing spondolytis	6.1
Bursitis/kyphosis	6.1
Sleep apnea	3.0

Virtually all of the program participants were identified as being at risk for falling (93.9%) and three-quarters of them had a history of falling. All of the program participants were referred to physical

therapy for evaluation and treatment, while 90.9% were referred to occupational therapy and 36.4% were referred to speech therapy. This was often following an extensive program of rehabilitation therapies delivered in the acute rehabilitation unit of the hospital.

Health Services Trajectory and Utilization

Program participants had an average length of stay on one of the Parma acute care units of 5.85 days, with a range of 1 to 15 days. A total of 27 participants (81.8%) were then transferred to the acute rehabilitation unit at Parma. The average acute rehabilitation unit stay was 23.9 days, with a range extending from 5 to 56 days. Seven (21.2%) program participants received further post-acute care at the Parma SNF. These 7 participants averaged 17.7 days of SNF care (range 5-45 days).

Inpatient LOS	5.85 (N=33)	1-15 days
Acute rehab stay	23.9 (N=27)	5-56 days
Parma SNF	17.7 (N=7)	5-45 days

The D.A.Y. program participants received intensive therapy services in both the acute rehab and day program settings. The following table displays the number of participants receiving each type of therapy in each setting, the average number of each type of therapy session in each setting, and the range in number of therapy sessions that were received.

Acute rehab PT	32.0 sessions (N=29)	5-56 sessions
Acute rehab OT	46.9 sessions (N=27)	1-128 sessions
Acute rehab ST	19.1 sessions (N=22)	10-46 sessions
Day program PT	11.9 sessions (N=33)	1-17 sessions
Day program OT	9.1 sessions (N=30)	1-16 sessions
Day program ST	5.9 sessions (N=11)	1-10 sessions

Post-acute Care Discharge Health Care Utilization: Readmissions and ED Visits

Medical records were reviewed for the 90 day period following discharge from the acute care setting for both readmissions to the hospital and visits to the emergency department. In addition, 30-day, 60-day, and 90-day readmission rates and ED visit rates were noted. The primary diagnosis or presenting symptoms were recorded. A total of seven (21.2%) program participants were readmitted to the inpatient setting within 90 days of initial hospital discharge. Of these, 6.1% (2) were readmitted

within 30 days, 9.1% (3) were readmitted between 31 and 60 days, and 6.1% (2) were readmitted between 61 and 90 days of discharge. A total of 26 participants had no readmissions within this 90 day time period, while the 7 participants had one readmission each. Readmission diagnoses were as follows:

- Pneumonia 3.0%
- Pacemaker insertion 3.0%
- TIA 3.0%
- Orthostatic hypotension 3.0%
- Congestive heart failure 9.1%

A total of nine participants (27.3%) sought emergency department care for a total of 11 visits within 90 days of hospital discharge. Of these subjects, 6.1% (2) had an ED visit within 30 days, 12.1% (4) had a visit between 31 and 60 days, and 12.1% (4) had a visit between 61 and 90 days after discharge. A total of 24 (72.7%) participants had no ED visits within this 90 day time frame, while 7 (21.2%) had one visit and 2 (6.1%) had two visits to the ED. Presenting complaints/diagnoses for the first visit were as follows:

- Pneumonia 3.0%
- Vomiting 3.0%
- Chest pain 3.0%
- Slurred speech 3.0%
- Orthostatic hypotension 3.0%
- CHF, hypoxia 3.0%
- CHF, dyspnea 6.1%
- Vertigo 3.0%

Presenting complaints/diagnoses for the second visit were as follows:

- Vomiting 3.0%
- Syncope, hypotension 3.0%

Any Hospitalization Within 90 Days	21.2% (N=7)
<= 30 day Readmission	6.1% (N=2)
31- 60 day Readmission	9.1% (N=3)
61-90 day Readmission	6.1% (N=2)
Any Emergency Department Visit Within 90 Days	27.3% (N=9)
<=30 Day Visit	6.1% (N=2)
31-60 Day Visit	12.1% (N=4)
61-90 Day Visit	12.1% (N=4)
[1 visit=21.2% (7); 2 visits=6.15% (2)]	

Participant Satisfaction with the Program

Satisfaction data were available from 21 program participants and/or their family members. All were very enthusiastic or enthusiastic about the individual aspects of the program and the program staff members. The item rated most highly was skill of the caregivers (95.2% very good), while the item rated lowest was the plan of care meetings (78.6% very good). The therapy services were also rated very highly (90% very good). When asked if they would recommend the program to others, 100% said they would, and several responded that they already had recommended the program to others. When asked if they would be willing to pay for the program, 85% replied yes, 10% replied no, and 5% replied maybe – depending on cost and ability to pay.

Item	**Very Good**	**Good**	**Acceptable**	**Not Acceptable**
Skills of caregivers	95.2%	4.8%	0	0
Professional handling	88.9%	11.1%	0	0
Promptness	92.9%	7.1%	0	0
Response from staff	85.7%	14.3%	0	0
Plan of care meetings	78.6%	21.4%	0	0
Cleanliness, appearance	85.7%	14.3%	0	0
Individual attention	85.7%	14.3%	0	0
Therapy services	90.0%	10.0%	0	0

Perhaps more informative are the responses to open-ended questions, and the comments that expanded on the survey scale responses.

What elements of the program were most helpful?

- Hours of operation so I can work (caregiver)
- Daily day care, therapy sessions at center
- Physical and occupational therapy
- Therapy and loving care of staff
- Exercises made me stronger

- All the program
- PT, OT, and plan of care meeting
- I was able to work without worrying (caregiver); supervision by staff; flexibility
- Therapy; having a safe place, piece of mind (caregiver)
- Helped keep her independent, helped keep her mind active, built on inpatient therapy
- Helped us understand her strengths and limitations; helped her redevelop social skills; gave Dad time to do something for himself
- Therapy; daily health check
- People who work there; their dedication and concern
- Allowed caregiver to breath and rest; transportation services; treatment

How could program be improved?

- No suggestions
- Glad I came to program; no suggestions
- More activities
- Don't know – it was good
- Keep it the way it is
- Maybe limit day to a maximum of 6 hours
- Wish it could be extended
- It's great!

Other comments:

- Dad looked forward to coming to center; enjoyed socializing with others
- Enjoyed group discussion; therapists are great
- Staff are caring and helpful; always listen; everyone does a great job
- Would like to see cost subsidy
- As caregiver, glad he had somewhere to go while he continued to improve and get stronger; I had peace of mind that he was safe
- Satisfaction and progress of my Mom has been exceptional; staff and therapist plans of care have met all needs
- Staff worked as team; plan of care meetings helped me know what was going on; all my concerns were addressed and worked on
- Very nice, very polite, make sure family understands
- Helped Mom recover quicker and get back to familiar routine; given me much piece of mind
- Freedom from nursing home; camaraderie; enjoys activities and crafts; safe environment, reduces stress on family
- Thanks for all your help; all patient concerns addressed called about concerns with blood pressure issues
- Mom loved it; liked the staff. Did her a lot of good

- Helped in every way
- Did not want her to go to nursing home; she was very happy to get up every day and go to center
- Everyone was concerned, sympathized with us, but were still very informative, professional helpful
- I was very happy there; very satisfied

Comparison of D.A.Y. Program Participants to Individuals Who Declined Program

Those individuals who were responsible for identifying individuals who might benefit from the structured day care program kept records on those patients who were offered the program but declined to participate. The evaluation team analyzed those records to explore in what ways the non-participants might have differed from the participants. The results are presented in this section.

Enrollment Year	**D.A.Y. Program Participants**	**Non-participants**
2005	9.1% (3)	11.1% (5)
2006	30.3% (10)	53.3% (24)
2007	36.4% (12)	24.4% (11)
2008	24.2% (8)	11.1% (5)
Discharge Destination		
D.A.Y.	100%	0.0%
SNF/ECF	0	35.6%
Home with home health	0	33.3%
Home – self-care	0	31.1%

Over the same time period as the D.A.Y. program was being offered to Parma patients about to be discharged from the hospital, a total of 45 patients were offered the program but declined to participate. Their ultimate discharge destinations were to a SNF or ECF, home with home health care or home with self-care. Specific reasons for declining to participate in the D.A.Y. were not recorded. Demographically, these individuals looked very similar to those who took part in the day program: 57.8% were female, 97.8% were Caucasion, 89% had Medicare, and average age was 77.4 years, with a range from 52 to 92. Living arrangements were a little different, with a higher percentage on non-participants living with their spouses (39%) and a lower percentage living with an adult child (22%). The primary caregiver was also more likely to be a spouse (43.8%) compared to DAY program participants (27.3%).

A very similar percentage of non-participants had a primary diagnosis of CVA/stroke (57.8%). However, as a group, fewer of them had any neurological diagnosis (73%), and more of them had a heart-related diagnosis (11.1%), as compared to the program participants. Non-participants also had a much wider variety of diagnoses (21 different diagnoses in total). These additional diagnoses included cellulitis, sepsis, pericardia effusion, and brachial plexis injury. The non-participants had on average one

additional comorbid condition (7.1), with a range of 4-11 secondary diagnoses. Non-participants were more likely than participants to have the following comorbid conditions: cardiac disease (76%), hypertension (84%), renal disease (40%), Gyn/GU problems (29%), depression (29%), GERD (20%), and anemia (47%). Non-participants were less likely than participants to have: hyperlipidemia, COPD, UTI, Alzheimers, or arthritis. The non-participants were also less likely to have a history of falls or to be considered at risk for falls.

The acute care length of stay was slightly lower for this group as compared to the day program participants: 5.54 days compared to 5.85 days. The range of acute care days extended from 2 to 22 days, compared to 1-15 for the program participants. A lower percentage (66.7%) of non-participants was transferred to the acute rehab unit as compared to participants (81.8%). The average number of PT, OT, and ST sessions the referred individuals received was slightly lower than the number of therapy sessions the DAY program participants received.

Utilization	**DAY Program (Means)**	**Non-Program (Means)**
Acute LOS days	5.85 +/-3.3	5.54 +/- 4.1
Acute rehab days	23.9 (N=27; range 5-56)	20.1 (N=30; range 2-54)
Acute PT sessions	32.0 (N=29; range 1-83)	27.3 (N=32; range 3-81)
Acute OT sessions	46.9 (N=27; range 1-128)	35.4 (N=32; range 1-117)
Acute ST sessions	19.1 (N=22; range=10-46)	16.8 (N=26; range 1-50)

There was a difference in post-acute care discharge health care utilization between the two groups. Sixteen, or 35.6%, of the non-participants were hospitalized within 90 days of discharge. Ten (22.2%) non-participants were hospitalized within 30 days; 4 (8.9%) were hospitalized between 31 and 60 days; and 4 (8.9%) were hospitalized between 61 and 90 days. Looking at the total number of hospital admissions per non-participant, 64.4% had no admissions, 26.7% had one admission, and 8.9% had two admissions within 90 days of discharge. The admitting diagnoses for the first hospital admission were as follows:

- CHF 2.2%
- Fall/SDH 2.2
- Chest pain 2.2
- Atrial fibrillation 2.2
- Slurred speech 2.2
- GI bleed 2.2
- C-diff infection 2.2
- UTI 2.2
- Carotid endarterectomy 2.2
- Bilateral pulmonary embolism 2.2
- Dyspnea 2.2

- Fall with multiple injuries 2.2
- DVT 2.2
- COPD 2.2
- Fever 2.2
- Unknown 2.2

The admitting diagnoses for the second hospitalization were as follows:

- CHF 2.2%
- Confusion 2.2
- Syncope 2.2
- Phlebitis, DVT 2.2

A greater number of non-participants also had a visit to the emergency department in the post-discharge period. One (2.2%) non-participant had 3 visits, 5 (11.1%) had 2 visits, 11 had 1 visit (24.4%), and 28 (62.2%) had no visits within 90 days of discharge. The ED diagnoses/presenting complaints for the first ED visit were as follows:

- Chest pain 2.2%
- Fall, SDH 2.2
- Tachycardia 2.2
- Slurred speech 2.2
- Headache 2.2
- Epistaxis 2.2
- Fever, acute leukocytosis 2.2
- UTI, tachycardia 2.2
- Dyspnea 2.2
- Confusion 2.2
- Weakness 2.2
- DVT 2.2
- Passed out 2.2
- COPD, dyspnea 2.2
- Febrile illness 2.2
- Unresponsive 2.2

The ED diagnoses/presenting complaints for the second ED visit were as follows:

- CHF 2.2%
- Diarrhea 2.2
- Fall – multiple injuries 2.2

- Facial numbness 2.2
- Syncope 2.2
- Phlebitis, DVT 2.2

The ED diagnosis/presenting complaint for the third ED visit was as follows:

- Diarrhea 2.2%

Post-Acute Care Discharge	**DAY Program Participants**	**Non-Participants**
Any hospital readmission	21.2% (7)	35.6% (16)
<=30 day	6.1 (2)	22.2 (10)
31-60 day	9.1 (3)	8.9 (4)
61-90 day	6.1 (2)	8.9 (4)
Any ED visit	27.3% (9)	37.8% (17)
<=30 day	6.1 (2)	20.0 (9)
31-60 day	12.1 (4)	15.6 (7)
61-90 day	12.1 (4)	11.1 (5)

Total Hospital Readmissions	DAY Program	Non-Participants
None	78.8%	64.4%
One	21.2	26.7
Two	0.0	8.9
Total ED Visits - None	72.7%	62.2%
One	21.2	24.4
Two	6.1	11.1
Three	0.0	2.2

Conclusion

The D.A.Y. program appears to represent a viable alternative to post-discharge services delivered by SNFs and home care agencies. The program is highly rated by participants and their family caregivers. The center provides a safe environment and a transition period where a home safety inspection can be conducted, many therapeutic goals can be achieved, and an individualized plan of care and home exercise program developed for each participant. The program evaluation results also suggest that some post-discharge readmissions and emergency department visits may be prevented as a result of attending such a program. Program participants had a lower all-cause 30-day readmission rate compared to non-participants as well as compared to published Medicare and Medicare-Ohio 30-day readmission rates. Although the size of the program prevents broad generalizations about its effectiveness, these preliminary results support further development and support for expanded adult day services being offered as a reimbursed alternative for post-acute care.

Review of the participant and non-participant records leads to several other conclusions as well. Program participants came from a relatively small number of medical services, suggesting that physician support and belief in the program influences whether a family member or individual patient will opt for this particular program. Participants were likely to have families that were noted in the records as being highly supportive of the individual, and the patients were likely to be identified as highly motivated by the program staff. The availability of reimbursement for skilled nursing care or home health care appeared to influence many family members' decisions about post-discharge care. Transportation issues were another factor in some cases.

The nursing records showed several instances where active problem-solving by the staff may have averted a trip to the emergency department and/or a readmission. For example, a severe hypoglycemic episode was treated on site. Conflicting drug prescriptions were clarified by the staff with the primary care physician. The consistent observation and daily nursing assessments in the immediate post-discharge period appear to be beneficial to patients and their family members, as well as the health care system.